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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,577

09/10/2003

Lawrence T. Drzal

MSU 4.1-588

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EXAMINER

NILAND, PATRICK DENNIS

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

08/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/659,577

Applicant(s)

DRZAL ET AL.

Examiner

Patrick D. Niland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 8, 10-15, 19, 20, 22, 23 and 25-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-8, 10-15, 19-20, 22-23, and 25-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The amendment of 5/10/07 has been entered. Claims 1-4, 7-8, 10-15, 19-20, 22-23, and 25-32 are pending.

2. The amendment filed 5/10/07 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The recitation added to the abstract of "up to five minutes so that there is not significant order between the nanoplatelets compared to a precursor graphite" does not find support for the entirety of the newly recited range, i.e. 0-5, in the originally filed specification nor for "so that there is not significant order between the nanoplatelets compared to a precursor graphite", even at the sections cited by the applicant.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. Claims 1-4, 7-8, 10-15, 19-20, 22-23, and 25-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A. The applicant points to figure 4 for basis for the new recitation of "1040 Watts" of claims 29-32. The figure only shows 1040W at 3 minutes for one specific graphite expansion mixture/process situation. This does not establish using 1040W for all graphitization expansion mixtures and/or process situations, particularly regarding the time the power is applied, encompassed by the newly presented claims. The recited power is therefore new matter as it relates to the entire scope of the instant claims.

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B. There is not basis in the originally filed specification for the newly recited "heating for a time up to 5 minutes" of claims 1-4, 7-8, 10-15, 19-20, 22-23, and 25-32 because the full range, i.e. 0-5 minutes, encompassed by this range is not disclosed in the application as originally filed, even at the sections cited by the applicant.

C. No basis is seen in the originally filed specification for "without a peak as with the precursor graphite due to aligned sheets". The cited areas of the specification and drawings are noted but are not commensurate in scope with the instant claims because the figures cited are limited to only the disclosed intercalated natural graphite and the disclosed expanded graphite. There is no mention of "precursor graphite". Thus, the clarification of "significant" this may offer has no basis in the originally filed specification because the difference in peak size between the expanded graphite and the intercalated graphite cited does not establish the bounds of "significant" between expanded graphite of the instant claims and the recited "precursor graphite" which may be different than the disclosed intercalated natural graphite.

4. Claims 1-4, 7-8, 10-15, 19-20, 22-23, and 25-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. It is unclear what the scope of the instantly claimed "have no significant remaining order between the platelets" is. Particularly, it is unclear how much order is allowed to remain due to the term "significant remaining order". It is unclear what is intended to be a "significant" amount of remaining order. Thus, the slight clarification of "significant" the claimed "without a peak as with the precursor graphite due to aligned sheets" may offer does not fully remedy the lack of clarity issue of this paragraph because the difference in peak size between the expanded

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graphite and the intercalated graphite cited in the applicant's specification and drawings does not establish the bounds of "significant" between expanded graphite of the instant claims and the recited "precursor graphite" which may be different than the disclosed intercalated natural graphite as the instant specification does not fully describe what constitutes "significant" nor what constitutes the "precursor graphite". Some relatively large peak apparently may remain in the x-ray diffraction of the expanded graphite as long as it is not significant relative to the peak in the "precursor graphite". Thus, one must clearly know what the precursor graphite is. It would seem to encompass non-intercalated graphite as well as intercalated graphite. Intercalated graphite is expected to have less order than non-intercalated graphite and therefore a lower peak than non-intercalated graphite. Thus, in comparison to non-intercalated graphite, the peak of the expanded graphite may appear to some as insignificant whereas compared to intercalated graphite, the peak may appear to some as significant. Thus, we can clearly see that the claim has a nebulousness to its scope which is precluded by the above cited statute. The scope of the claims are unclear therefore.

5. The prior art considered does not teach nor suggest the instantly claimed limitations in a manner consistent with *Graham v. Deere*.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

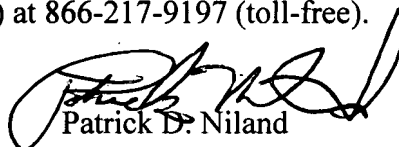
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick D. Niland
Primary Examiner
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